

**REMARKS**

Claims 1-9 are pending. Claim 1 has been amended and claims 10-17 added. Therefore, claims 1-17 remain pending in the application.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: the original claims and the specification, page 6, lines 10 and 18-25, and page 7, lines 1-6.

Entry of the forgoing is appropriate pursuant to 37 C.F.R. §1.116 for at least the following reasons. First, the amendments address the new grounds of rejection under 35 U.S.C. §102(b). Second, the amendments clearly overcome the grounds of rejection. Third and as noted below, the finality of the previous Official Action was premature and the Applicant should have the right, as a non-final Official Action, for entry of amendments.

***REQUEST TO WITHDRAW FINALITY OF OFFICIAL ACTION***

It is respectfully requested that, to the extent that the Barsoum references form a part of a rejection in the present Official Action, the finality of the Official Action dated October 5, 2005, be withdrawn.

MPEP §706.07(a) sets out the standard for when a final rejection is proper on a second or subsequent action. MPEP §706.07(a) states that:

shall be final, ***except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement*** filed during the period set forth in 37

CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).  
(emphasis added)

Here, the Examiner has introduced and bases a new rejection on references to Barsoum et al. (USP 5,942,455 and USP 6,013,322). However, Applicant in the response submitted July 7, 2005, had made no amendment and both of the Barsoum et al. references had been submitted in an Information Disclosure Statement dated February 12, 2004, e.g., before the date of the May 9, 2005, Official Action.

From the above, it is respectfully asserted that no proper basis for issuing a Final Office Action exists in this case and the finality of the Official Action is premature. See MPEP §706.07(a) and §706.07(c). Accordingly, withdrawal of the finality of the Official Action dated October 5, 2005, is respectfully requested.

Finally, in view of the improper designation of the current Official Action as a final action, Applicant respectfully requests that the amendments accompanying this response be entered and the subject application be reconsidered.

***CLAIM REJECTIONS UNDER 35 U.S.C. §102(b)***

Claims 1-9 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,330,853 to Hofmann et al. (hereafter "*Hofmann et al.*") on the grounds set forth at paragraph 2 of the Official Action. This rejection should be withdrawn because anticipation of this claim based on the disclosure in *Hoffman et al.* has not been established.

As discussed in the previous Response, *Hoffman et al.* does not disclose the claimed relationship between M and X, as represented in *Hoffman et al.* as Ti and N.

For example, Applicants have previously noted that, in *Hoffman et al.*, the Ti and N relationship is unity (col. 2, line 62) or approximately unity (col. 2, lines 62-66) and that the upper limit of Ti:N in the second layer appears to be 1.3. The Examiner, at paragraph 2 of the Official Action agrees with this characterization.

However, the Examiner continues and notes that Figure 13 shows that the first layer has a higher nitrogen content than the second layer. The Examiner then concludes that the first layer falls within the claims.

Applicants respectfully disagree with the Examiner's conclusions. Even if *Hoffman et al.* suggests a higher nitrogen content in the first layer (see, col. 2, lines 48-49), such disclosure still does not disclose, teach or suggest the claimed relationship such that independent claim 1 is anticipated or even obvious.

A higher nitrogen content, in the absence of any other disclosure, does not necessarily result in the claimed  $M_{n+1}AX_n$  relationship. Indeed, a disclosure to increasing nitrogen (one of the X constituents in claim 1) does not disclose anything about the content of M, which is claimed as having a relationship of M:X of  $n+1:n$ . As seen mathematically, increasing n to some arbitrary amount or degree does not necessarily result in the relationship of  $n+1:n$  for the designated elements (unless one knows the amount of M).

Indeed, a review of *Hoffman et al.* reveals that the disclosed "higher" nitrogen content first layer has the following composition:  $Ti_{0.32}Al_{0.36}N_{0.32}$  (col. 2, lines 61-62). Thus, in contrast to the assertion in the rejection, *Hoffman et al.*'s disclosure of higher nitrogen actually includes disclosure of the same amount of Ti (e.g., M) and reduces the

ratio of M:X to unity, e.g., 0.32:0.32. This disclosure in *Hoffman et al.* is reinforced at col. 3, where it is disclosed that the ratio of Ti:N in the first layer is within the range 1.1 to 0.9, especially 1.0 (col. 3, lines 48-49) or is 0.95 to 1.0 (col. 3, lines 52).

Therefore, comparing the disclosure in *Hoffman et al.* to the claims of the present application at issue here, the *Hoffman et al.* patent does not disclose, teach or suggest at least the claimed  $M_{n+1}AX_n$  compositional relationship. In light of at least this difference, Applicants respectfully submit that an anticipatory rejection is improper since *Hoffman et al.* does not disclose the invention as claimed.

Claims 1-9 stand rejected<sup>1</sup> under 35 U.S.C. §102(b) as being anticipated by “the Barsoum references”<sup>2</sup> (hereafter “*Barsoum '455* and *Barsoum '322*” or the “*Barsoum* patents”) on the grounds set forth at paragraph 3 of the Official Action. This rejection should be withdrawn because anticipation of this claim based on the disclosure in *Barsoum '455* and *Barsoum '322* has not been established.

To anticipate a claim, the reference must teach all of the elements of the claim. See MPEP § 2131. Comparing the disclosures in *Barsoum '455* and *Barsoum '322* to the claims of the present application at issue here, the *Barsoum* patents do not disclose a relationship of  $M_{n+1}AX_n$  where n is 1 or 3.

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<sup>1</sup> To the extent the Barsoum references form a part of a rejection, Applicants have addressed the merits of the Barsoum references to expedite prosecution of this application.

<sup>2</sup> Although the Official Action does not cite to specific patent numbers in referring to Barsoum, the rejection does use the plural form of references and there are only two patents to Barsoum of record in the application – USP 5,942,455 and USP 6,013,322.

In light of at least this difference, Applicants respectfully submit that an anticipatory rejection is improper since *Barsoum* '455 and *Barsoum* "322 do not disclose the invention as claimed.

### **NEW CLAIMS**

New claims 10-17 have been added with claim 10 being independent. Claim 10 discloses, among other things, that at least one layer comprises a MAX-phase defined as  $M_{n+1}AX_n$  where  $n$  is 1, 2 or 3,  $M$  is one of the elements Ti, Zr, Hf, V, Nb, Ta, Cr or Mo,  $A$  is Al, Si or S, and  $X$  is  $(N_{1-x}, C_x)$  where  $x$  is between 0 and 0.6. Neither *Hoffman et al.* nor the *Barsoum* patents disclose or suggest such a relationship. Accordingly, claim 10 and its dependent claims 11-17 distinguish over these cited references.

**CONCLUSION**

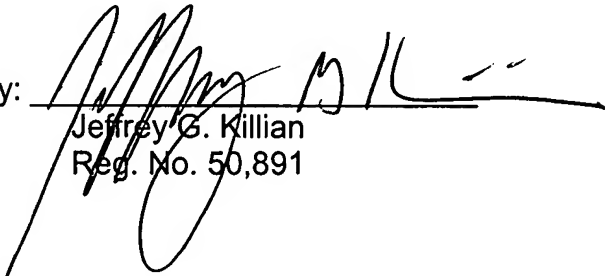
From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

DRINKER, BIDDLE & REATH LLP

Date: January 20, 2006

By: \_\_\_\_\_

  
Jeffrey G. Killian  
Reg. No. 50,891

**CUSTOMER NO. 055694**  
**DRINKER, BIDDLE & REATH LLP**  
1500 K Street, N.W., Suite 1100  
Washington, D.C. 20005-1209  
Tel: (202) 842-8800  
Fax: (202) 204-0289